

AMATEUR SATELLITE REPORT



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AMSAT's Newsletter for the Amateur Space Program.

UoSAT OSCAR-11 Launched. Early glitch overtakes March 1st launch success: Beacons go silent.

Preliminary UoSAT-B Telemetry Format Compiled by NK6K

2/19/84 — Preliminary UoSAT-B telemetry data format.
Currently incomplete. All equations subject to change.
Some item names will change, although the actual function of all telemetry items has now been fixed.
Checksummed TLM format. Channel format is:

nnvvvc

nn — channel number

vvv — value

c — To compute checksum, convert each ASCII character into the binary, e.g. 'A', which comes in as 41H becomes 0AH. Exclusive OR all 5 values. Convert the lower four bits of the XOR answer to an ASCII hex digit, e.g. 0BH becomes 42H, this character is the checksum.

A 1Eh cursor home character preceeds UoSAT-2 in each frame. The number after UoSAT-2 on the header line is the date in YYMMDDWHHMMSS, W is day of week, 0-6. The date below is bogus, it wasn't initialized after the s/c was powered up. The s/c was in the Bldg 836 clean room when this frame was taken. Some of the data is valid.

UOSAT-2 0000010040621

00515101039802011203010204023505028F06025107031508032909026D
10515011000012005613010314000515000416000717736418736B19736A
20515321032226677230001240017250007260774277367287368297369
30515231016532284F33000034000735030536000537736638353E39353F
40763641000542688043000744000045056246000247736148353949346C
50561751017252661653263154111055852F56000357306758736F593539
602105617BC762800C630041641003651C0E66140567340668000E69000F

Non-checksummed frame. Everything is the same as above except that the checksum character becomes a space. This format is more pleasing to the human eye.

UOSAT-2 0000010040630

00515 01035 02010 03010 04023 05028 06025 07031 08032 09026
10515 11000 12004 13010 14000 15000 16000 17736 18736 19736
20515 21032 22667 23000 24001 25000 26077 27736 28736 29736
30515 31016 32284 33000 34000 35028 36000 37736 38353 39353
40763 41000 42688 43000 44000 45055 46000 47736 48353 49346
50561 51017 52661 53256 54111 55852 56000 57306 58736 59353
60210 617BC 62800 63004 64100 651C0 66140 67340 68000 69000

A dwell format is also available, in which only selected channels are displayed. The channels can come out in any order, in checksummed or non-checkedsummed format. The UoSAT-2 and time stamp may or may not be included.

Chan #	Name	Equation
00	Solar array current -Y	$I=1.9(516-N)$ ma
01	Nav mag X axis	$H=(0.1485N-68)$ uT
02	Nav Mag Z axis	$H=(0.1523N-69.3)$ uT
03	Nav mag Y axis	$H=(0.1507N-69)$ uT
04	Sun sensor #1	its
05	Sun sensor #2	a
06	Sun sensor #3	bit
07	Sun sensor #4	tricky
08	Sun sensor #5	at this
09	Sun sensor #6	time (Ian)
10	Solar array current +Y	$I=1.9(516-N)$ mA
11	Nav mag (Wing) temp	$T=(330-N)/3.45$ C
12	Horizon sensor	
13	Spare (tbd)	
14	DCE RAMUNIT current	
15	DCE CPU current	
16	DCE GEMEM current	
17	Facet temp +X	$T=(480-N)/5$ C
18	Facet temp +Y	$T=(480-N)/5$ C
19	Facet temp +Z	$T=(480-N)/5$ C
20	Solar array current -X	$I=1.9(516-N)$ mA
21	+10V line current	$I=0.97N$ mA
22	PCM voltage +10V	$V=0.015N$ V
23	P/W logic current (+5V)	$I=0.14$ (N<=500)
24	P/W Geiger current (+14V)	$I=0.21N$ mA
25	P/W Elec sp.curr (+10V)	$I=0.096N$ mA
26	P/W Elec sp.curr (-10V)	$I=0.093$ mA
27	Facet temp -X	$T=(480-N)/5$ C
28	Facet temp -Y	$T=(480-N)/5$ C
29	Facet temp -Z	$T=(480-N)/5$ C
30	Solar array current +X	$I=1.9(516-N)$ mA
31	-10V line current	$I=0.48N$ mA
32	PCM voltage -10V	$V=0.036N$ V
33	1802 comp curr (+10V)	$I=0.21N$ mA
34	Digitalter current (+5V)	$I=0.13N$ mA (N<=500)
35	145MHz beacon power O/P	$P=(2.5N - 275)$ mW (N>200)
36	145MHz beacon current	$I=0.22N$ mA
37	145MHz beacon temp	$T=(480-N)/5$ C
38	Command decoder temp (+Y)	$T=(480-N)/5$ C
39	Telemetry temp (+X)	$T=(480-N)/5$ C
40	Solar array voltage (+30V)	$V=(0.1N-51.6)$ V
41	+5V line current	$I=0.97N$ mA
42	PCM voltage +5V	$V=0.0084N$ V
43	DSR current (+5V)	$I=0.21N$ mA (n<=500)
44	Command RX current	$I=0.92N$ mA
45	435MHz beacon power O/P	$P=(2.5N-200)$ mW N>175
46	435MHz beacon current	$I=0.44N$ mA
47	435MHz beacon temp	$T=(480-N)/5$ C
48	P/W temp (-X)	$T=(480-N)/5$ C
49	BCR temp (-Y)	$T=(480-N)/5$ C
50	Battery charge/dischg curr	$I=0.8(N-513)$ mA
51	+14V line current	$I=5N$ mA
52	Battery voltage (+14V)	$V=0.21N$ V
53	Battery cell volts (MUX)	See below
54	Telemetry current (+10V)	$I=0.02N$ mA
55	2.4GHz beacon power O/P	$P=((N+50)**2)/480$ mW
56	2.4GHz beacon current	$I=0.45N$ mA
57	Battery temp	$T=(480-N)/5$ C
58	2.4GHz beacon temp	$T=(480-N)/5$ C
59	CCD imager temp	$T=(480-N)/5$ C
60-67	Status points 1-96	

(the status points have been keyed in already at Surrey, I'm not going to key them in again, there are a whacking great lot of them (I'm picking up the lingo), I'll append them when Mac forwards the file from UK.)

Multiplexed Battery Scheme (channel 53)

Six consecutive TLM frames will carry the total volts, the following ten frames will be individual cells, starting with cell #10. Each cell has its own equation.

Cell	Equation
ALL	
10	
9	
8	
7	
6	(To follow when available)
5	
4	
3	
2	
1	

The DCE currents will have small counts even when the DCE is off. We think this is due to the + 10 coming in from the Nav Mag lines. If the Nav Mag is off (unlikely), the DCE currents will be zero when both it and the Nav Mag are off. Here are the status points as supplied by Mac back at Surrey, and updated at VAFB. This is preliminary and subject to change. Some items are undefined. These values are encoded in TLM channels 60-67, 12 points per channel, e.g. channel 60 has status bits 1,2,3,4,5,6,7,8,9,10,11,12 in that order. Thus 60400 means status point 2 is set, 1, and 3-12 are reset.

UDSAT-B STATUS POINTS - Prelim 2/20/84

1	145 MHZ GENERAL DOWNLINK POWER	OFF/ON
2	435 MHZ ENGINEERING DOWNLINK POWER	OFF/ON
3	2401 MHZ ENGINEERING DOWNLINK POWER	OFF/ON
4	TELEMETRY CHANNEL MODE SELECT	RUN/DWELL
5	TELEMETRY CHANNEL DWELL ADDRESS LOAD	OFF/ON
6	TELEMETRY CHANNEL DWELL ADDRESS SOURCE	GND/COMPUTER
7	PRIMARY SPACECRAFT COMPUTER POWER	OFF/ON
8	PRIMARY SPACECRAFT COMPUTER ERROR COUNT	BIT-1
9	PRIMARY SPACECRAFT COMPUTER ERROR COUNT	BIT-2
10	PRIMARY SPACECRAFT COMPUTER BOOTSTRAP	PROM/UART
11	PRIMARY SPACECRAFT COMPUTER ERROR COUNT	BIT-3
12	PRIMARY SPACECRAFT COMPUTER BOOTSTRAP	A/B
13	GRAVITY GRADIENT BOOM DEPLOYMENT PYROS	SAFE/ARM
14	GRAVITY GRADIENT BOOM DEPLOYMENT PYROS	HOLD/FIRE
15	GRAVITY GRADIENT BOOM DEPLOYMENT	SAFE/ARM
16	GRAVITY GRADIENT BOOM DEPLOYMENT	HOLD/DEPLOY
17	GRAVITY GRADIENT BOOM DEPLOYMENT	EXTEND/RETRACT
18	ATTITUDE CONTROL MAGNETORQUERS	SAFE/ARM
19	ATTITUDE CONTROL MAGNETORQUER -X	ON/OFF
20	ATTITUDE CONTROL MAGNETORQUER -Y	ON/OFF
21	ATTITUDE CONTROL MAGNETORQUER -Z	ON/OFF
22	ATTITUDE CONTROL MAGNETORQUER	REVERSE/FORWARD
23	435 MHZ PSK MODE	NRZI/NRZIC
24	2401 MHZ PSK MODE	NRZI/NRZIC
25	ATTITUDE CONTROL MAGNETORQUERS	HIGH/LOW POWER
26	DIGITALK EXPT. POWER	OFF/ON
27	CCD CAMERA EXPT. POWER	OFF/ON
28	CCD CAMERA EXPT. INTEGRATION PERIOD	BIT 0
29	CCD CAMERA EXPT. INTEGRATION PERIOD	BIT 1
30	CCD CAMERA EXPT. VIDEO AMP. GAIN	BIT 0
31	CCD CAMERA EXPT. VIDEO AMP. GAIN	BIT 1
32	DSR POWER	OFF/ON
33	DSR MODE	READ/WRITE
34	DSR MODE	RUN/RESET
35	RADIATION DETECTORS GEIGER-A EHT POWER	OFF/ON
36	RADIATION DETECTORS GEIGER-B EHT POWER	OFF/ON
37	RADIATION DETECTORS GEIGER-C EHT POWER	OFF/ON
38	ELECTRON SPECTROMETER SENSOR EHT POWER	OFF/ON
39	DCE EXPERIMENT POWER	OFF/ON
40	DCE EXPT.	RESET/RUN
41	DCE EXPT. PROM SELECT	A/B
42	DCE EXPT. CPU CLOCK RATE SELECT	0.9/1.8 MHZ
43	NAVIGATION MAGNETOMETER POWER	OFF/ON
44	SPACE DUST EXPERIMENT POWER	OFF/ON
45	SPACE DUST EXPERIMENT LEVEL SELECT	BIT 0
46	BCR STATUS	0/1
47	435 MHZ DOWNLINK MODULATION SELECT	AFSK/PSK
48	2401 MHZ DOWNLINK MODULATION SELECT	AFSK/PSK

49		
50		
51		
52		
53		
54	COMMAND WATCHDOG ENABLE	
55	COMMAND WATCHDOG RESET	
56	145 MHZ DOWNLINK DATA SELECT	A
57	145 MHZ DOWNLINK DATA SELECT	B
58	145 MHZ DOWNLINK DATA SELECT	C
59	145 MHZ DOWNLINK DATA SELECT	D
60	145 MHZ DOWNLINK DATA SELECT	E
61	145 MHZ DOWNLINK DATA SELECT	F
62	145 MHZ DOWNLINK DATA RATE	A
63	145 MHZ DOWNLINK DATA RATE	B
64	435 MHZ DOWNLINK DATA RATE	A
65	435 MHZ DOWNLINK DATA RATE	B
66	435 MHZ DOWNLINK DATA RATE	C
67	PARTICLE/WAVECOUNTER CONTROL	COUNT/RESET
68	DOWNLINK LOCKOUT	ENABLE/DISABLE
69		
70		
71		
72		
73	P/W channel plate control BIT 0	
74	P/W channel plate control BIT 1	
75	P/W channel plate control BIT 2	
76	SPACE DUST	
77	SPACE DUST	
78	SPACE DUST	
79	SPACE DUST	
80	SPACE DUST	
81	SPACE DUST	
82	SPACE DUST	
83	SPACE DUST	
84	DSR WRITE CYCLE COMPLETE	
85	1802 CWO OUTPUT	
86	1802 TLM PORT (MSB)	
87	1802 TLM PORT	
88	1802 TLM PORT	
89	1802 TLM PORT	
90	1802 TLM PORT	
91	1802 TLM PORT	
92	1802 TLM PORT	
93	1802 TLM PORT	
94	1802 TLM PORT	
95	1802 TLM PORT	
96	1802 TLM PORT (LSB)	

Grid Square Program

By W3IWI

The program GRIDX.BAS is intended to provide a simple way for AMSAT members to calculate the "Maidenhead" grid square designators on their home computers. This program allows input in either Longitude/Latitude of Grid Square formats and will calculate the other format.

If a grid square is given to less than 6 character precision on input, the center of the square defined by the characters is assumed. For example, W3IWI at 76.936 degrees west and 39.185 degrees north yields grid square FM19ME. If the grid location FM19 is specified, then the center of FM19, which is at FM19LL is assumed. From my location, this is about 30 km away.

Another feature of this program is that it gives you the range (along the surface of the earth) and azimuth from the first station entered (called 'home') to the target stations.

The GRIDX program was adapted from an earlier W3IWI program called GRID (which was rather machine specific). It was written and tested in North-Star (N*) disk basic (running under CP/M) and runs in N*, SoHo or BAZIC as is. I wrote the program with transportability in mind. The major N* "quirk" that you should have to adapt to other dialects is in the area of string notation. N* explicitly calls out string members. For example, if G\$ = "ABCDEFGHI", then G\$(3,5) = "CDE". Microsoft uses the MID\$ function to accomplish this and would get the same sub-string with MID\$(G\$,3,3). Similarly, G\$(1,1) in N* is "A"; to get this in Microsoft, you would use either LEFT\$(G\$,1) or MID\$(G\$,1,1). Another minor change that is necessary (line 1830) is to change N*'s SQR to SQRT in most other dialects.

```

10 DIM G$(10),T$(5),U$(5)
20 DIM X0$(60),X1$(60),X2$(60),X3$(60),X4$(60),X5$(60),X6$(60),X7$(60)
30 E9=1E-6 : T=50 : REM -- Small number & Tab location for responses
40 P1=3.1415926535 : P2=P1/180 : REM -- PI, Deg => Radians
50 I=0 : REM -- Pass counter ( for DO WHILE .not. Quit loop )

60 REM
70 REM -- Sign-on message and initialization
80 X0$="-----"
90 X1$="I"
100 X2$="I Maidenhead Grid Square Utility Program = GRIDX I"
110 X3$="I (C) 1984 Dr. Thomas A. Clark, W3IWI I"
120 X4$="I 6388 Guilford Road I"
130 X5$="I Clarksville, MD 21029 I"
140 X6$="I Permission is granted for non-profit, amateur I"
150 X7$="I usage providing credit is given to the author. I"
160 REM ----- TAC 20 Feb 84 ----

170 PRINT X0$ : PRINT X1$ : PRINT X2$ : PRINT X1$
180 PRINT X3$ : PRINT X4$ : PRINT X5$ : PRINT X1$
190 PRINT X6$ : PRINT X7$ : PRINT X1$ : PRINT X0$
200 PRINT

210 REM
220 REM -- Loop to get station info
230 PRINT "In the following, enter West Longitude and Latitude in"
240 PRINT "units of degrees and decimals" : PRINT

250 I=1 : PRINT : REM -- Start of loop
260 IF I > 1 THEN 300
270 PRINT "Coordinates of 'home' station:" : GOTO 500

280 REM
290 REM -- Get target station info
300 PRINT "Target: C=Coordinates, G=Grid, Q=Quit",TAB(T), : INPUT T$
310 T$=T$(1,1) : IF T$="C" THEN 490
320 IF T$="c" THEN 490
330 IF T$="G" THEN 400
340 IF T$="g" THEN 400
350 IF T$="Q" THEN STOP
360 IF T$="q" THEN STOP
370 PRINT "INVALID ENTRY -- TRY AGAIN" : GOTO 300

380 REM
390 REM--Grid Square entry for target station
400 PRINT "Enter Grid Square",TAB(T), : INPUT G$
410 GOSUB 1220 : IF L3=6 THEN 430
420 PRINT "Grid square was padded to middle of cell = ",TAB(T),G$
430 GOSUB 1450 : GOSUB 1500
440 PRINT "Coordinates: W.Longitude = ",TAB(T),W," Deg.W"
450 PRINT " Latitude = ",TAB(T),L," Deg."
460 GOTO 560

470 REM
480 REM -- Coordinate entry for either home or target station
490 PRINT "Coordinates of station # ",I," : "
500 PRINT "West Longitude =", TAB(T), : INPUT W
510 PRINT " Latitude =", TAB(T), : INPUT L
520 GOSUB 1090 : PRINT " Grid Square = ",TAB(T),G$
530 IF I = 1 THEN 620 : REM -- Exit to initialize "home" station

540 REM
550 REM -- Calculate Azimuth and bearing to target station
560 GOSUB 1770
570 PRINT "Azimuth to target station = ",TAB(T),A," Deg."
580 PRINT " Range = ",TAB(T),R,U$
590 GOTO 250

600 REM
610 REM--Initialization for "home" station
620 W5=W*P2 : L5=L*P2 : S5=SIN(L5) : C5=COS(L5) : REM -- Trigonometry
630 PRINT
640 PRINT "Do you want Ranges in Km, Miles or Nautical Miles ?"
650 PRINT " Enter K, M or N", TAB(T), : INPUT U$ : U$=U$(1,1)

660 REM
670 REM--Constants defined as U are the mean radius of the earth
680 IF U$="K" THEN 710
690 IF U$="k" THEN 710
700 GOTO 720
710 U$=" Km. " : U=6366.20 : GOTO 250

720 IF U$="M" THEN 750
730 IF U$="m" THEN 750
740 GOTO 760
750 U$=" Miles" : U=3956.09 : GOTO 250

760 IF U$="N" THEN 790
770 IF U$="n" THEN 790
780 PRINT "INVALID ENTRY -- TRY AGAIN" : GOTO 640
790 U$=" N.Mi." : U= 60/P2 : GOTO 250

1000 REM -----
1010 REM -- Subroutine to convert Longitude and Latitude to Grid Square
1020 REM Call with W=West Longitude (e.g. Chicago = +88 degrees)
1030 REM and L=Latitude (+ for Northern Hemisphere).
1040 REM The units for both W and L are degrees.
1050 REM
1060 REM On Completion, the string G$ contains the "Maidenhead"
1070 REM Grid Square as a 6-character string.
1080 REM
1090 W3=180-W : IF W3<0 THEN W3=W3+360
1100 W1=INT(W3/20+E9)
1110 W2=INT((W3-20*W1)/2+E9)+48 : W1=W1+65
1120 W3=INT(24*(W3/2-INT(W3/2)+E9))+65
1130 L1=INT((L+90)/10+E9) : L2=INT(L+90+E9-10*L1)
1140 L3=INT((L+90-10*L1-L2)*24+E9) : L1=L1+65 : L2=L2+48 : L3=L3+65
1150 G$=CHR$(W1)+CHR$(L1)+CHR$(W2)+CHR$(L2)+CHR$(W3)+CHR$(L3)
1160 RETURN

1170 REM -----
1180 REM -- Subroutine to Pad Grid Square to middle of a cell if
1190 REM all 6 characters are not given. This routine also checks
1200 REM the validity of the square and kills program if not correct.
1210 REM
1220 L3=LEN(G$) : IF L3>6 THEN 1400
1230 IF L3=6 THEN 1270
1240 IF L3 < 4 THEN 1260 ELSE G$=G$(1,4)+"LL"
1250 GOTO 1270
1260 IF L3 < 2 THEN 1400 ELSE G$=G$(1,2)+"SSLL"
1270 IF G$(1,1) < "A" THEN 1400
1280 IF G$(1,1) > "R" THEN 1400

1290 IF G$(2,2) < "A" THEN 1400
1300 IF G$(2,2) > "S" THEN 1400
1310 IF G$(3,3) < "0" THEN 1400
1320 IF G$(3,3) > "9" THEN 1400
1330 IF G$(4,4) < "0" THEN 1400
1340 IF G$(4,4) > "9" THEN 1400
1350 IF G$(5,5) < "A" THEN 1400
1360 IF G$(5,5) > "X" THEN 1400
1370 IF G$(6,6) < "A" THEN 1400
1380 IF G$(6,6) > "X" THEN 1400
1390 RETURN
1400 PRINT " ***** INVALID GRID SQUARE = ",G$, " ***** ABORTED *****"
1410 STOP

1420 REM -----
1430 REM -- Subroutine to convert Grid Square=G$ to West Longitude=W
1440 REM with W returned in degrees and fractions
1450 W1=ASC(G$(1,1))-65 : W2=ASC(G$(3,3))-48 : W3=ASC(G$(5,5))-65
1460 W=180 -20*W1 -2*W2 -W3/12 -1/24 : IF W<0 THEN W=360+W
1470 RETURN

1480 REM -----
1490 REM -- Subroutine to convert Grid Square=G$ to Latitude=L
1500 L1=ASC(G$(2,2))-65 : L2=ASC(G$(4,4))-48 : L3=ASC(G$(6,6))-65
1510 L=-90 +10*L1 +L2 +L3/24 +1/48
1520 RETURN

1530 REM -----
1540 REM -- Subroutine to calculate distance and azimuth between stations
1550 REM
1560 REM On entry, W and L are the second stations west longitude
1570 REM and Latitude. The first ("home") station should already have
1580 REM its coordinates available as
1590 REM S5=Sin(Latitude), C5=Cos(Latitude), W5=W.Long (radians)
1600 REM
1610 REM In the following, P2 has the value PI/180 to convert degrees
1620 REM to radians. U is the units conversion constant of Km, miles,
1630 REM or N.Miles per mean earth radius (see note below).
1640 REM
1650 REM On exit, R is the range along a great circle from the "home"
1660 REM station to the remote station in the units defined by U.
1670 REM A is the azimuth (bearing) from the "home" station to the
1680 REM second station along the great circle connecting them.
1690 REM
1700 REM This routine makes a simplifying approximation that the earth
1710 REM is a sphere of radius U. Actually, the earth is an oblate
1720 REM Spheroid with the polar radius 1 part in 300 less than the
1730 REM equatorial radius. This approximation leads to errors up to
1740 REM about 30 km and a fraction of a degree on ranges and azimuths
1750 REM to very distant stations.
1760 REM
1770 W6=W*P2 : L6=L*P2 : S6=SIN(L6) : C6=COS(L6)
1780 C=S5*S6 + C5*C6*COS(W6-W5) : IF ABS(C)>1 THEN C=SGN(C)
1790 S=SQRT(1-C*C) : X=ATN(S/C) : IF C<0 THEN X=X+P1
1800 R=U*X : IF S<0 THEN 1820 ELSE A=0
1810 RETURN
1820 C1=(S6-S5*C)/(S*C5) : IF ABS(C1)>1 THEN C1=SGN(C1)
1830 S1=SQRT(1-C1*C1) : A=ATN(S1/ABS(C1))/P2 : S3 = SIN(W5-W6)
1840 IF S3<0 THEN A=A-A
1850 IF C1<0 THEN A=180-A
1860 IF A<0 THEN A=A+360
1870 IF A>360 THEN A=A-360
1880 RETURN

1890 REM -----
9999 END

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AO-10 Simulated Emergency Test Planned

The National Communications System (NCS) has requested the exclusive participation of AMSAT in an OSCAR-10 Simulated Emergency Test. The test is tentatively scheduled for the first week in May. Test traffic will be passed on one evening that week and on either Saturday or Sunday.

Those amateurs who are able to participate are asked to contact AMSAT Headquarters as soon as possible.

AMSAT views this test as an important opportunity to demonstrate to key government officials the viability and merits of amateur radio satellites in terms of providing emergency communications channels when normal means are degraded or destroyed. AMSAT believes a successful demonstration will advance our prospects for an early launch opportunity aboard a U.S. vehicle.

Contact HQ today!

Bulletin Stations Revise Schedule, Freqs

The growing popularity of the W6CG/W6KAG bulletins on AO-10, Mode B has prompted continuation of the trial services provided by the duo. However, several changes

will be manifest as the project enters its second phase.

Bud and Butch have advised ASR of several changes that will go into effect immediately. First, the bulletins will henceforth be transmitted only for orbits where the apogees fall between 120 and 180 degrees West. (Formerly 60 to 180). The bulletins will be sent from one hour prior to through one hour subsequent to these apogees as before.

Secondly, on Wednesday and Saturday, the Mode B bulletins will follow Mode L so look for the bulletins from 1 hour through 2 hours after apogee on these days.

Third, no Mode B bulletins will be transmitted on Mondays, QRP day. If you value these bulletins, please let us know. Write W6CG, W6KAG or ASR.

Challenge Cup Rules Clarified

Several inquiries regarding the AMSAT-Stoner 25th Anniversary Challenge Cup have arisen. KO5I and his planning staff advise as follows regarding the inquiries.

a) An affiliated AMSAT organization in the context of this event is a national AMSAT organization such as AMSAT DL or AMSAT UK. This does not include radio clubs which are "Member Societies".

b) Under the rules, section 7), Miscellaneous, amend as follows:

"7) Miscellaneous: No repeat QSOs. A repeat QSO is one for which the other callsign, his grid square and your grid square are identical to a prior QSO. If any of the three elements (call, his grid or your grid) are different, it counts as a new contact. If either you or the other station (or both) move to a new grid square, the ensuing QSO counts as a new contact. One QSO is credited for each unique call-grid(his)-grid(yours) worked. The QTH of your station can be moved at any time." Balance of 7) unchanged.

c) Under the rules, section 8) Reporting, add the following: "Your log must clearly indicate your grid square for each QSO claimed. If your QTH remains fixed, indicate your grid square once on each log page.

Perhaps an example will illustrate.

On opening day I work KO5I in Paris, TX from Warwick, NY. That's one QSO. A week later KO5I shows up operating portable from Norwich, England and we again work. That's the second QSO. The next day I travel to Omaha (a new grid) and work KO5I again. That's 3. Then, while I'm still in Omaha, KO5I returns to Paris and we again work. That's 4. Each QSO is unique and counts since each was a unique combination of call-grid-grid. (His call, his grid, my grid).

DX Notes

Of the 89 countries having been on AO-10, ON7HP claims to have worked 82; K5ADQ claims 81. Latest claimant is W2RLV who sent in his list of 58. Not bad! How about you?

A rare Siberian station, RØK, operating at 71N, 189W is being heard on the RS birds. This station is very far east in Asia and could become an Asian for WAC-Satellite for stations in the Eastern U.S. and Canada. Watch for him on RS-5, 6 at 29420 and RS-7, 8 on 29470. "Vlad" says to QSL him thru UAØKCL. He's also likely on AO-10. Tks KO5I, G3IOR.

LU1AHC/CX has been heard and worked by several on AO-10.

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Satellite: uosat-b
Epoch time:      84061.79768519
Thu Mar 1 19:08:40.000 1984 UTC
Element set:      prelaunch
Inclination:      98.2596 deg
RA of node:       124.2426 deg
Eccentricity:     0.0004100
Arg of perigee:   174.4207 deg
Mean anomaly:     226.7604 deg
Mean motion:     14.61025794 rev/day
Decay rate:       0 rev/day^2
Epoch rev:       0
Semi major axis:  7065.080 km
Anom period:      98.560888 min
Apogee:           690.030 km
Perigee:          684.236 km
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Satellite: oscar-10
Catalog number:  14129
Epoch time:      84043.43656170
Sun Feb 12 10:28:38.931 1984 UTC
Element set:      81
Inclination:      25.6986 deg
RA of node:       215.6553 deg
Eccentricity:     0.6089222
Arg of perigee:   245.0869 deg
Mean anomaly:     41.5600 deg
Mean motion:     2.05854046 rev/day
Decay rate:       -9.3e-07 rev/day^2
Epoch rev:       502
Semi major axis:  26105.753 km
Anom period:      699.524750 min
Apogee:           35627.288 km
Perigee:          3834.543 km
Beacon:           145.8100 mhz
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